

Please amend the claims as follows:

1. (Canceled) A method of on-site generation of a fluorine cleaning gas from hydrofluoric acid to be utilized in a cleaning process for a process chamber for semiconductor and/or flat panel display manufacturing, comprising the steps of:  
converting a hydrofluoric acid to a mixture of a hydrofluoric acid gas and said fluorine cleaning gas on site but remote to the process chamber;  
transferring the gas mixture to a cold trap;  
converting said hydrofluoric acid gas to a liquid; and  
separating said liquid hydrofluoric acid from said fluorine gas, said fluorine cleaning gas remaining in a gaseous state thereby generating said fluorine cleaning gas for utilization in said cleaning process.

2. (Canceled) The method of claim 1,  
wherein said fluorine cleaning gas is utilized through activation thereof to form reactive fluorine species to clean the process chamber, said reactive fluorine species formed inside the process chamber or said reactive fluorine species formed outside the process chamber and subsequently delivered to the process chamber.

3. (Canceled) The method of claim 2, wherein activation of said fluorine cleaning gas is via a plasma source, a heat source, or an electrical source.

4. (Canceled) The method of claim 3, wherein said plasma source is a microwave energy source or a radiofrequency energy source.

7. (Canceled) The method of claim 1, wherein converting said hydrofluoric is via electrolysis.

8. (Amended) A method for cleaning a process chamber for semiconductor and/or flat panel display manufacturing, comprising:

*located in a processing system*

Inser) generating a fluorine cleaning gas from hydrofluoric acid, said fluorine cleaning gas generated on-site, with but remote to the process chamber, said generating comprising:

C converting said hydrofluoric acid to a gas mixture consisting essentially of said hydrofluoric acid and said fluorine gas;

transferring the gas mixture to a cold trap;

C converting said hydrofluoric acid in said gas mixture into a liquid hydrofluoric acid; and

removing said liquid hydrofluoric acid from the cold trap, said fluorine cleaning gas remaining in a gaseous form;

activating said fluorine cleaning gas to form fluorine radicals; and

cleaning the process chamber with said fluorine radicals.

C 9. (Amended) The method of claim 8, wherein said fluorine cleaning gas is pumped into an on-site storage unit prior to said activating said fluorine cleaning gas.

3 10. The method of claim 8, wherein said fluorine cleaning gas is activated to form fluorine radicals inside the process chamber or wherein said fluorine cleaning gas is activated to form fluorine radicals outside the process chamber, said fluorine radicals subsequently delivered to the process chamber.

4 11. The method of claim 8, wherein activating said fluorine cleaning gas is via a plasma source, heat source, or an electrical source.

5 12. The method of claim 11, wherein said plasma source is a microwave energy source or a radiofrequency energy source.

6 15. (Amended) The method of claim 8, wherein said converting said hydrofluoric acid is via electrolysis.